

Department of Health and Senior Services (DHSS)
Missouri Heart Disease and Stroke Prevention Program (MHDSP)

STROKE AWARENESS
Worksite Pilot Project – May through June 2005

Overview

Stroke is Missouri's third leading cause of death and the leading cause of adult disability according National Stroke Association¹. In late 1996, the Federal Food and Drug Administration approved the first acute stroke treatment, Tissue Plasminogen Activator (tPA). Acute stroke treatment (such as tPA) must be administered within three-hours of symptom onset. Administering tPA is not without concern and dangerous unless the type of stroke has been properly diagnosed before treatment is administered. Approximately 85% of all strokes are ischemic; tPA is exclusively for ischemic stroke, according to the National Brain Attack Coalition. A clot blocking the flow of blood to the brain causes ischemic stroke, and tPA is a clot buster.

Recent studies indicate that only 2% to 5% of eligible acute stroke patients actually receive acute stroke treatment. In May 2005, New York Reuters Health published a study of almost 7,000 stroke hospitalizations in the Paul Coverdell Stroke Registry. Fewer than 10% arrived within the first hour of symptom onset. Fewer than 25% arrived within three hours of symptom onset. The study revealed that only 177 of the 4,280 eligible patients received tPA.

Objective

A number of steps must be successfully taken within that three-hour window from symptom onset to increase the number of people suffering stroke who are offered acute stroke treatment. To address this goal, the Department of Health and Senior Services (DHSS) Missouri Heart Disease and Stroke Prevention Program (MHDSP) targets projects that focus on **community stroke awareness** and **acute stroke treatment system development** as follows:

- 1) Community members must recognize stroke and know to immediately call 911 when someone exhibits symptoms.
- 2) EMS must be aware that time is critical because the hospital must complete CT scan and lab before treatment can be offered within three hours of symptom onset.
- 3) Because all hospitals don't administer acute stroke treatment, community members and EMS must know the location of the nearest acute stroke treatment hospital. Depending on the distance to that hospital, they must know the closest hospital that is actively cooperating with a stroke treatment hospital.
- 4) In some Missouri regions, there may be long distances to hospitals offering stroke treatment. As regional issues and gaps are identified, system development should encourage a cooperating regional network that focus on regional strengths. Depending on each region's strengths, the system may include ambulance transport, telemedicine, air ambulance, or other methods to assure access to appropriate acute stroke treatment.

Project Purpose

The focus of this project was to improve the community member's recognition of stroke indicators and their knowledge to immediately call 911. This pilot is designed as a worksite project tool for stroke awareness. Worksites offer access to a large number of Missouri's adult community members. MHDSP used this pilot project to test:

- 1) Whether the specific set of stroke awareness interventions would increase participant's awareness of stroke signs and symptoms and the need to immediately call 911,
- 2) Best approaches to deliver this information,
- 3) Whether this project should be expanded to other areas of the state.

¹ The Complete Guide to Stroke. National Stroke Association 2003.

Pilot Project Design

Pre-Test, Multiple Stroke Awareness Interventions, Post-Test

The idea for this stroke awareness pilot project was adapted from a heart attack awareness project designed by the Montana State Health Department. The Montana heart attack awareness project was featured in CDC's Preventing Chronic Disease, July 2004.

The pilot project spanned 45 days and tapped an inexpensive and easily accessible worksite setting by piloting in-house to the 750 employees located in the three-building DHSS office complex. The pilot tested the effectiveness of an information blitz using six specific stroke awareness interventions designed to increase the participant's recognition of stroke signs/symptom recognition and the need to call 911.

The six interventions were designed to be inexpensive, reproducible, and adaptable. They may be adapted to a variety of worksite characteristics. They may be adapted to other diseases or public health concerns. Certain interventions were designed to target worksites where employees have regular access to e-mail or the Internet. Certain interventions are designed to target worksites with multiple shifts and/or no e-mail access. By using several different approaches, employees have the opportunity to select what appeals to them, or employers can tailor the approach.

Project expense is minimal. Bottled water was purchased for break-time events (participation can be tallied by counting the number of bottles distributed during each event). There was also a cost for printing handouts and magnets.

Project supplies are minimal. Participants already had access to computers and email. Project prizes were donated. A handout table and portable television/video player were used during the break-time events. A cart was used to transport cases of bottled water and other supplies to break-time events. No meeting rooms were used but, depending on the worksite, could be used as a rainy day alternative for a break-time event.

Participant's work time requirement was minimal. However, work time was involved for a facilitator to solicit and collect the donated prizes, and to plan and implement interventions. The facilitator conducted informal stroke awareness conversations during the break-time events and used volunteers to distribute bottled water at the events.

Methods

MHDSP designed and tested the following interventions:

- Stroke awareness handouts offered to employees at the front door, as they arrive at work
- Break-time events featured a continuous stroke awareness video, handouts, informal awareness conversation
- E-mail "Brain Attack Quiz" featured a weekly quiz question and prize drawing for all participants
- Stroke awareness posters and material on bulletin boards
- Newsletter article for the worksite's email publication
- Payroll stuffer

MHDSP designed and tested the following handouts and intervention tools:

- Text for project announcement adaptable to e-mail, poster, or in-box flier
"Cool Stuff" event announcement adaptable to e-mail, poster, or flier
- Text for break-time event announcement adaptable to e-mail, poster, or in-box flier
break-time event announcement adaptable to e-mail attachment or poster
- "Brain Attach Quiz" questions best used as e-mail, but adaptable as meeting or morning handout quiz
"Brain Attack Quiz" information sheets related to each question
- Information sheet listing three stroke indicator questions and need to call 911
- Refrigerator magnets listing stroke symptoms and need to call 911
- Bookmark listing signs/symptoms and risk factors

The Stroke Awareness Worksite Pilot Project was announced by e-mail to all 750 employees in the three-building office complex. The email provided a pre-test and stated that employee participation was voluntary. The pre-test asked a series of stroke awareness questions and stated that the names of participants submitting answers to both the pre-test and post-test would be included in a drawing for donated prizes.

Immediately following the pre-test, an information blitz of stroke awareness interventions began and continued during the next 45 days. All 750 employees were invited to every intervention. At the end of the 45-day intervention period, a post-test was e-mailed *only to the employees who previously submitted answers to the pre-test*. The post-test asked the same stroke awareness questions as the pre-test. Results of both tests were compared to identify whether the interventions successfully increased employee recognition of stroke indicators. Additionally, the post-test solicited information about which interventions and tools employees preferred; about employee willingness to participate in future projects; and asked for employee comments and ideas.

Pilot Project Results

For all areas tested, post-test data indicates that when a worksite offers all interventions, recognition of stroke signs / symptom will increase among participating employees.

All 750 employees had opportunity to participate in each intervention module. An unduplicated count of total project participants would be substantially higher than the 353 participating in Brain Attack Quiz #1 because different employees participated in each different intervention. Some employees elected to participate in several modules. Most employees selected opportunities of their interest but did not participate in all modules.

- Brain Attack Quiz #1: 353 DHSS employees participated
- Brain Attack Quiz #2: 290 DHSS employees participated
- Brain Attack Quiz #3: 229 DHSS employees participated

- You Deserve a Break Event #1: 200 DHSS employees participated
- You Deserve a Break Event #2: 176 DHSS employees participated
- You Deserve a Break Event #3: 180 DHSS employees participated

- One hundred sixty-six (166) employees answered *both* the pre-test and the post-test.
The following data was obtained:

1) Did you mind participating by answering questions in the pre-test and post-test?

- 99% I didn't mind participating.
- 0% I participated, but didn't like that I was asked to do so.
(One participant did not answer this question.)

2) Would you participate if a DHSS program conducted a future health-related pilot project?

- 70% I believe that I would participate in a future project.
- 30% I'd consider participating, depends on the topic and/or time involved.
- 0% No, I probably won't participate in the future.

3) During the past 2 months, did you notice any information about stroke? (*check all that apply*)

Number of participants who “noticed” these types of stroke information:

| | | | |
|------------|---------------------|--------------|------------------------------|
| Poster: 95 | Payroll staffer: 87 | Handouts: 69 | Video on a TV: 49 |
| Email: 150 | Stroke magnets: 66 | Bookmark: 51 | Conversation, or speaker: 46 |
| Flyer: 56 | Other: 3 | | |

4) During the past 2 months, what source(s) helped you learn or remember something about stroke? (*Check all that apply*) Number of participants who “learned” from these types of stroke information:

| | | | |
|------------|---------------------|--------------|------------------------------|
| Poster: 45 | Payroll staffer: 52 | Handouts: 48 | Video on a TV: 29 |
| Email: 130 | Stroke magnets: 52 | Bookmark: 28 | Conversation, or speaker: 31 |
| Flyer: 33 | Other: 3 | | |

5) Which are signs that someone may be having a stroke? (*Check all that apply*)

Percent of recognition, and percent of change from pre-test:

| | |
|------|---|
| 100% | Sudden face, arm, or leg numbness or weakness, especially on one side +4% improvement above pre-test recognition |
| 99% | Sudden speech slurred, or difficulty speaking or understanding +2% improvement above pre-test recognition |
| 99% | Sudden trouble seeing in one or both eyes +15% improvement above pre-test recognition |
| 96% | Sudden severe headache 17% improvement above pre-test recognition |
| 99% | Sudden trouble walking, dizziness, loss of balance or coordination +7% improvement above pre-test recognition |

6) Which of the following questions may help recognize if someone might be having a stroke? (*Check all that apply*)

| | |
|-----|--|
| 98% | Ask the person to smile. (<i>Do they understand? Is their smile uneven?</i>) +12% improvement above pre-test recognition |
| 96% | Ask the person to raise both arms. (<i>Do they understand? Is it easy to hold both arms at the same level?</i>) +13% improvement above pre-test recognition |
| 99% | Ask the person to tell you their name and day of the week. (<i>Do they understand? Is speech clear?</i>) +8% improvement above pre-test recognition |

7) When you do not know if someone is actually having a stroke, which is more appropriate:

| | |
|-----|--|
| 1% | Watch/observe for several hours, symptoms may go away. |
| 99% | Immediately call emergency services, treatment must begin as soon as possible. |

Conclusion/Comments

The Stroke Awareness Worksite Pilot Project was successful. Data supports expansion of the project. As discussed under “Recommendations”, there are a variety of ways the project could be adapted and expanded.

Pre-test scores were higher than expected. Scores may have been higher for two reasons: 1) Test questions were straightforward, no “tricky” wording was used; and 2) Pilot site employees work in public health. During project design, it was decided that project material (including test questions) would be designed to teach, not to mislead. That decision was based on the thought that “tricky” or misleading questions/answers might unintentionally cause a participant to remember incorrect life or death information.

The pilot project allocated 45 days to offer all approaches among three buildings. The 45-day 3-building design equates to reproducing this project for worksites with 3 shifts, or other moderately complex worksite arrangements. All approaches could be presented using a shorter timeframe for smaller or less complex worksites.

Very little work time is required for employees to participate in the project. However, a facilitator’s work time is required to plan the project, and implement interventions.

It may be necessary to design incentives that encourage a worksite to implement the project. Without incentive, a worksite may only implement a limited number of approaches. Though not tested during this pilot, substantially limiting the number of modules may dilute project effectiveness. Incentive may include: Providing a facilitator for the project; or DHSS/MHDSP funding for facilitator’s time and project expense. Another option is to develop a Project Tool Kit to guide worksites on how to conduct the project by appointing a Stroke Awareness Task Force and DHSS/MHDSP or local health agency staff to provide technical assistance.

Recommendations

1) Identify target populations, then replicate this project to increase stroke awareness. Possibilities include, but are not limited to:

- Target specific large worksites in counties with higher stroke death rates.
- Target state government agencies to reach large numbers of employees.
- Discover which DHSS programs already have contracts with targeted worksites. Partner with those DHSS programs using an amendment to implement this project.

2) Research marketing opportunities that may build capacity at a local level. Possibilities include:

- Create a marketing tool to describe the project and offer an easy to use “how-to guide” featuring reproducible project intervention material. Possibilities include, but are not limited to:
 - Toolkit notebook. Create “how-to” sections for each reproducible intervention. Handouts and email attachments may be placed in sleeves with a corresponding computer disk for recreating each project’s material.
 - Toolkit website. Link to the DHSS website.
- Consider expanding the tool to feature other health awareness topics. If the tool is web based, by clicking on disease specific or public health titles (stroke awareness, diabetes, asthma, West Nile virus, etc) reproducible interventions and instructions could be accessible.
- Provide technical assistance and training opportunities, or train-the-trainer events, at the local level.